

Appl. No. 09/802,693

PATENT

Amdt. dated January 6, 2004


Reply to Office Action of June 25, 2003 and the Notice of
Non-Compliant Amendment mailed December 11, 2003 and
December 11, 2003

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings of claims in the application.

Please amend claims 34, 36, and 39; and add new claims 70-74 as follows.

Listing of Claims:

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1. (canceled)
 2. (canceled)
 3. (canceled)
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31. (canceled)

32. (canceled)

33. (canceled)

34. (currently amended) A method of resetting a threshold using a display coupled with a computer, said method comprising:

displaying a first standard on said display, said first standard used to select defect candidate image indications to be shown on a defect candidate distribution screen of said display;
and

graphically displaying a relation between defect density and threshold in which said first standard is indicated;

changing said first standard to a second standard, ~~wherein said defect candidate image indications on said defect distribution screen change responsive to said second standard on~~
said display; and

changing said graphical display in response to said change to said second standard.

35. (original) The method of claim 34 further comprising:

selecting a selected indication of said defect candidate image indications; and
viewing an inspection image associated with said selected indication.

36. (currently amended) The method of claim 34 wherein said first standard threshold is calculated using an electron beam noise value for a SEM system.

37. (withdrawn) A method in a computer system for determining a threshold for use in actual inspection of a semi-conductor material, comprising a circuit pattern, said method comprising:

displaying a first threshold and a second threshold;

displaying a graphic representation of a defect candidate image with a margin greater than or equal to said second threshold minus said first threshold;

when said graphic representation of said defect candidate image is selected for expanded viewing, displaying a clipped image associated with said graphic representation; and

when said defect candidate image is a false defect, and a predetermined number of allowable false defects is exceeded, receiving a new second threshold.

38. (withdrawn) The method of claim 37 wherein said clipped image is selected from a group consisting of a clipped inspection image, a clipped reference image, or a clipped defect candidate image.

39. (currently amended) A method in a computer system for displaying a defect candidate, said defect candidate stored in a memory, said method comprising:

displaying a two-dimensional defect candidate distribution for a standard threshold on a first screen, said two-dimensional defect candidate distribution comprising an indication of said defect candidate; and

displaying on a second screen an expanded view of said defect candidate, responsive to a selection of said indication on said first screen,

wherein said two-dimensional defect candidate distribution displayed on said first screen changes by changing said standard.

40. (original) The method of claim 39 wherein said expanded view comprises an image associated with said defect candidate and selected from a group consisting of a clipped inspection image, a clipped reference image, or a defect candidate image.

41. (original) The method of claim 39 wherein said expanded view comprises a re-scanned image of said defect candidate.

42. (original) The method of claim 39 further comprising a threshold screen for changing said threshold.

43. (original) The method of claim 39 further comprising a screen displaying a graph of defect density versus threshold.

44. (original) The method of claim 39 wherein said two-dimensional defect candidate distribution displays defect candidates responsive to a user selected area.

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45. (original) The method of claim 39 wherein said two-dimensional defect candidate distribution displays defect candidates by type of defect.

46. (original) The method of claim 45 wherein each type of defect has a different symbol, said defect being displayed using a symbol.

47. (withdrawn) The method of claim 45 wherein each type of defect has an associated threshold value.

48. (original) The method of claim 39 wherein said two-dimensional defect candidate distribution displays defect candidates as symbols.

49. (original) The method of claim 48 wherein a symbol of said symbols comprise a grayscale value.

50. (withdrawn) The method of claim 49 wherein said grayscale value is related to a margin.

51. (original) The method of claim 49 wherein said grayscale value is related to an enhanced result.

52. (original) The method of claim 48 wherein a symbol of said symbols comprise a color value.

53. (original) The method of claim 48 wherein a symbol of said symbols comprise a black or a white value.

54. (withdrawn) A system for displaying a symbol associated with a defect candidate of said plurality of defect candidates, comprising:

a computer readable medium for storing images associated with said plurality of defect candidates, wherein said images comprise an inspection image and a reference image associated with said defect candidate;

a processor coupled with said computer readable medium for determining a margin associated with said defect candidate, said margin calculated using said inspection image and said reference image; and

a display for displaying said symbol when said margin is equal to or above a threshold difference.

2. 55. (withdrawn) The system of claim 54 wherein said threshold difference is a difference between a display threshold value and a predetermined initial threshold value.

56. (canceled)

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64. (canceled)

65. (canceled)

66. (withdrawn) A method for determining a selected threshold of a plurality of thresholds, said plurality of thresholds for use in actual defect inspection of a semiconductor, said method comprising:

determining said plurality of thresholds from a defect difference distribution;

displaying to a user an indication for each of said plurality of thresholds; and

responsive to said user selection of a selected threshold of said plurality of thresholds, displaying symbols of defects with differences greater than or equal to said selected threshold.

67. (withdrawn) The method of claim 66 wherein said determining said plurality of thresholds is based on one or more local minimums in said defect difference distribution.

68. (withdrawn) A system for determining a first threshold for use in actual inspection of circuit pattern defects in a semiconductor material, said system comprising:

a defect detection unit for determining defects with differences above a second threshold minus a predetermined value; and

a display having an input mechanism for adjusting said first threshold, wherein

69. (withdrawn) The method of claim 68 wherein said first threshold has an initial value of said second threshold.

69. (withdrawn) The method of claim 68 wherein said second threshold is related to a defect difference distribution.

70. (new) The method of claim 34 wherein the graphical display which is changed in response to said change to said second standard is used to judge an effect of said change to said second standard.

71. (new) The method of claim 70 wherein the graphical display which is changed in response to said change to said second standard is used to judge whether said change to said second standard is proper.

72. (new) The method of claim 39 further comprising changing said standard to change said two-dimensional defect candidate distribution displayed on said first screen.

73. (new) The method of claim 72 wherein said two-dimensional defect candidate distribution displayed on said first screen which is changed in response to said change of said standard is used to judge an effect of said change of said standard.

74. (new) The method of claim 73 wherein said two-dimensional defect candidate distribution displayed on said first screen which is changed in response to said change of said standard is used to judge whether said change of said standard is proper.